HARFORD COUNTY GOVERNMENT DIVISION OF BUILDING SERVICES
RECOMMENDED DECK CONSTRUCTION GUIDELINES

GENERAL REQUIREMENTS

- All portions of decks constructed on townhomes shall be a minimum of 24 inches from the property line.
- All fasteners and engineered connectors shall be of approved material and compatible with any materials being used for deck construction. All materials used for deck construction shall either be approved by the code, evaluated by a recognized evaluation service or be approved for use by the building official.
- Fasteners and connectors used in conjunction with ACQ treated lumber shall be of the following approved material:
    1. Fasteners
        a. Type 304 and 316 stainless steel
        b. Hot-dip galvanized fasteners meeting ASTM A153
        c. Any fastener type specifically recommended by the preservative or hardware manufacturer
    2. Connectors
        a. Type 304 and 316 stainless steel
        b. Hot-dip galvanized connectors meeting ASTM A653 class G185 sheet with 1.85 ounces of zinc coating per square foot
        c. Any connectors specifically recommended by the preservative or hardware manufacturer
- All wood must be approved naturally decay resistant, treated southern yellow pine, or approved pre-engineered material.

- For a more in depth residential prescriptive deck building guide use the link below

http://www.awc.org/Codes/dcaindex.html

FOOTINGS

Concrete footings are required under all support posts. Footings must extend a minimum of 30 inches below the final grade, have an average thickness of 8 to 12 inches and be a minimum of 16 inches in diameter. Where the footing is to support both a deck and a roof covering, footings shall be a minimum of 24 inches in diameter. Larger footings may also be required for decks with large spans between posts and/or extend more than 14 feet out from the house. All footings must be placed on stable compacted soil. Footings shall be independent of all concrete patios that are not protected from frost heave. When decks are not bolted or attached to single family dwellings the deck would be considered freestanding. Freestanding decks shall not be required to meet local frost line. Freestanding decks are still required to have footings 16 inches in diameter but shall only extend 12 inches below grade.

POSTS

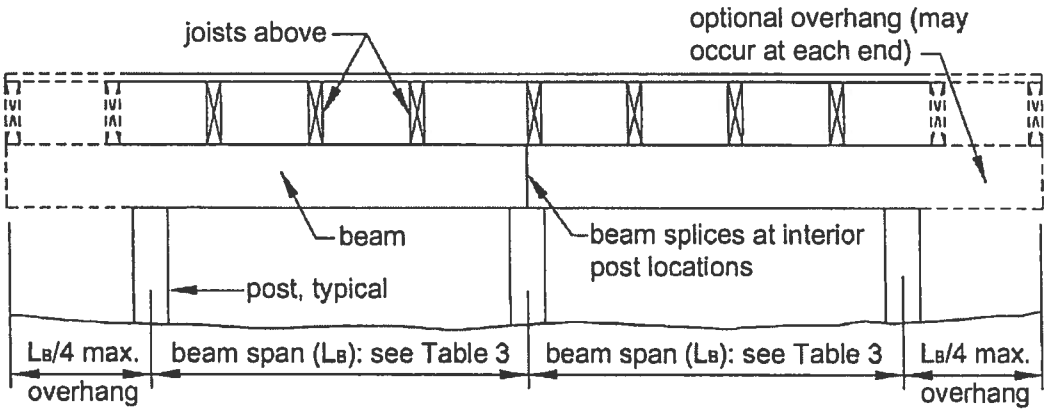
Post sizes of 4x4 and 4x6 are acceptable for unsupported lengths up to 8 feet. A nominal post size of 6x6 is necessary for unsupported lengths between 8 and 13 feet. Post spacing will depend upon the size of beam selected and the total area of the deck. Use the following table for TYPICAL spacing of posts. All posts must rest on top of the footing and be secured in place. Concrete **SHOULD NOT** be poured around wooden posts (refer to post and beam spacing chart).

Post and beam spacing chart

Beam Size	Double 2x8	Double 2x10	Double 2x12
Post Spacing	7 foot	9 foot	10 foot

BEAMS

Beams comprised of multiple members shall be fastened together with 3 - 10d galvanized nails 24 inches on center. For multiple member beams where each member is attached to each side of the post, blocking must be provided and attached between each ply a maximum of 24 inches on center. All splices shall be aligned over post supports. Beams shall be attached to support posts with an engineered connector, 2 - ½ inch carriage bolts when side mounted or 2 - ½ inch lag bolts when supported by a notch in the post. Beams may be cantilevered in accordance with the detail below.



LEDGER BOARDS

Decks designed to be structurally supported by existing construction shall provide a ledger board the same size as the deck floor joists. The ledger must be secured using ½ inch carriage bolts or lags installed in accordance with table R507.2. Ledgers must have sufficient flashing to prevent moisture damage to unprotected construction. Floor systems constructed with floor trusses, I-joists or specialized construction methods may require alternative attachment methods. When using alternate connection methods such as ledgerloks, it is imperative that this product be used per manufacture specifications and in accordance with county specifications. If the field inspector cannot verify what the ledger is being lagged or bolted to then a freestanding deck shall be required. When ledger boards are bolted or lagged to the dwelling, girders or other structural loads besides the 40 # uniform floor live load and 10# dead load are not allowed.

TABLE R507.2 FASTENER SPACING FOR A SOUTHERN PINE OR HEM-FIR DECK LEDGER AND A 2-INCH-NOMINAL SOLID-SAWN SPRUCE-PINE-FIR BAND JOIST[c, f, g] (Deck live load = 40 psf, deck dead load = 10 psf)

JOIST SPAN	6′ and less	6′ 1″ to 8′	8′ 1″ to 10′	10′ 1″ to 12′	12′ 1″ to 14′	14′ 1″ to 16′	16′ 1″ to 18′
Connection details	**On-center spacing of fasteners[d, e]**						
1/2 inch diameter lag screw with 15/32 inch maximum sheathing[a]	30	23	18	15	13	11	10
1/2 inch diameter bolt with 15/32 inch maximum sheathing	36	36	34	29	24	21	19
1/2 inch diameter bolt with 15/32 inch maximum sheathing and 1/2 inch stacked washers[b, h]	36	36	29	24	21	18	16

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm. 1 pound per square foot = 0.0479 kPa.

a. The tip of the lag screw shall fully extend beyond the inside face of the band joist.

b. The maximum gap between the face of the ledger board and face of the wall sheathing shall be 1/2 inch.

c. Ledgers shall be flashed to prevent water from contacting the house band joist.

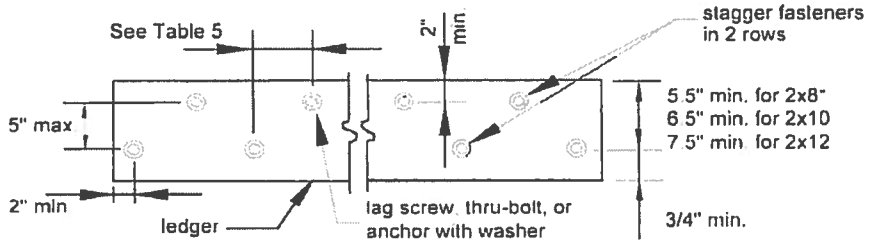
d. Lag screws and bolts shall be staggered in accordance with Section R507.2.1.

e. Deck ledger shall be minimum 2 × 8 pressure-preservative-treated No. 2 grade lumber, or other approved materials as established by standard engineering practice.

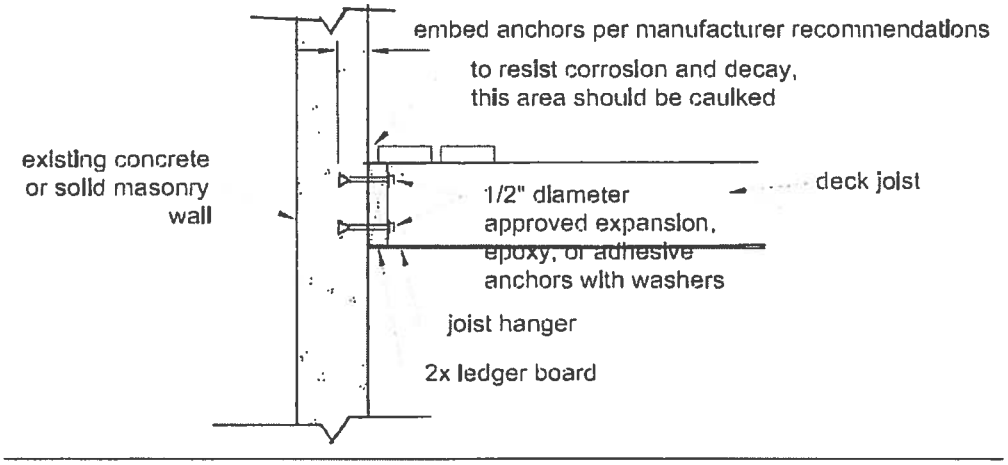
f. When solid-sawn pressure-preservative-treated deck ledgers are attached to a minimum 1-inch-thick engineered wood product (structural composite lumber, laminated veneer lumber or wood structural panel band joist), the ledger attachment shall be designed in accordance with accepted engineering practice.

g. A minimum 1 × 9 1/2 Douglas Fir laminated veneer lumber rimboard shall be permitted in lieu of the 2-inch nominal band joist.

h. Wood structural panel sheathing, gypsum board sheathing or foam sheathing not exceeding 1 inch in thickness shall be permitted. The maximum distance between the face of the ledger board and the face of the band joist shall be 1 inch.



NOTE Decks may **NOT** be supported by existing cantilevered construction or brick veneer. An additional post and beam system at these areas shall be required to support the imposed deck loads. All foundations attached directly to concrete or masonry walls shall be attached in accordance with the detail below.



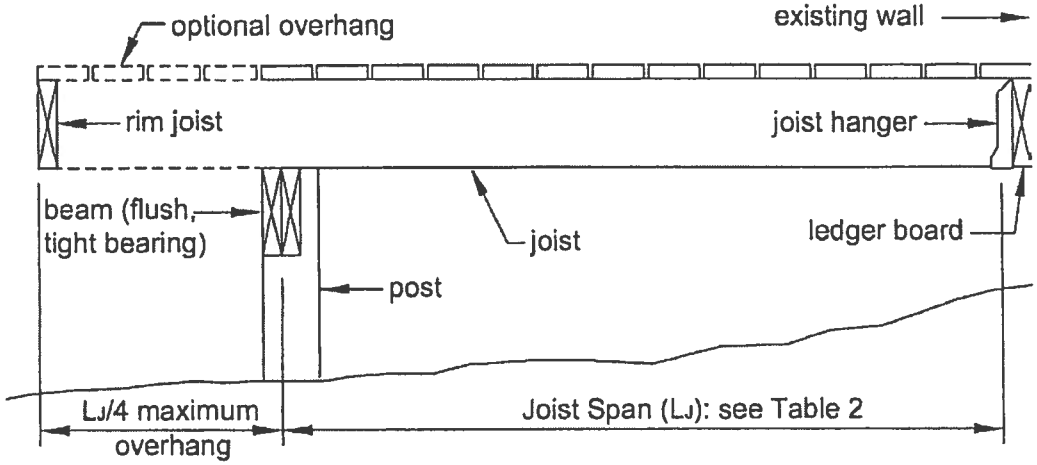
FLOOR JOISTS

Floor joist span and spacing shall not exceed the following table or the manufacturer's recommendations. All joists shall be toe nailed to the beam with 3 - 8d galvanized nails, shall be attached to the ledger with approved joist hangers installed per the manufacturer's instructions and face nailed to the end band with 3 - 16d galvanized nails. Floor Joists shall be cantilevered in accordance with table 2 below.

Floor joist span chart

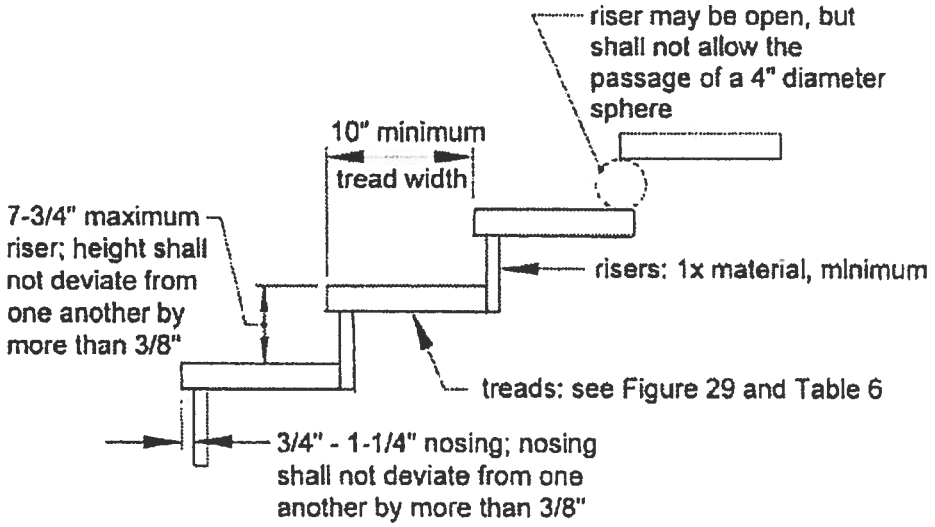
	2x6		2x8		2x10		2x12	
Joist Spacing	#2	#1	#2	#1	#2	#1	#2	#1
12"	10'-9"	10'-11"	14'-2"	14'-5"	18'-0"	18'-5"	21'-9"	22'-5"
16"	9'-9"	9'-11"	12'-10"	13'-1"	16'-1"	16'-9"	18'-10"	20'-4"
24"	8'-6"	8'-8"	11'-0"	11'-5"	13'-1"	14'-7"	15'-5"	17'-5"

Table 2



STAIRWAYS

Stairways must be a minimum of 36 inches in width. Stair stringers must be cut from 2x12 dimensional treated wood or 2x10 treated wood may be used if the stringers will not be cut. A minimum of three stair stringers are required when using treated wood tread material that has a minimum thickness of 1.25 inches. A minimum of four stair stringers are required for a 36 inch wide stairway when using synthetic/composite tread material. Riser height must be uniform within 3/8 inches between the largest and smallest riser in the stair. Each riser shall be between 4 and 7 3/4 inches high. Open risers are permitted as long as a 4 inch sphere cannot pass through the riser area. Tread depth within the flight of stairs must be equal and must have a minimum depth of 10 inches to include the nosing. Handrails must be provided on all flights of stairs containing 4 or more risers. Stairs that rise greater than 30 inches above the ground or adjacent walking surfaces must be provided with guards to prevent falling (see example below).



Landings

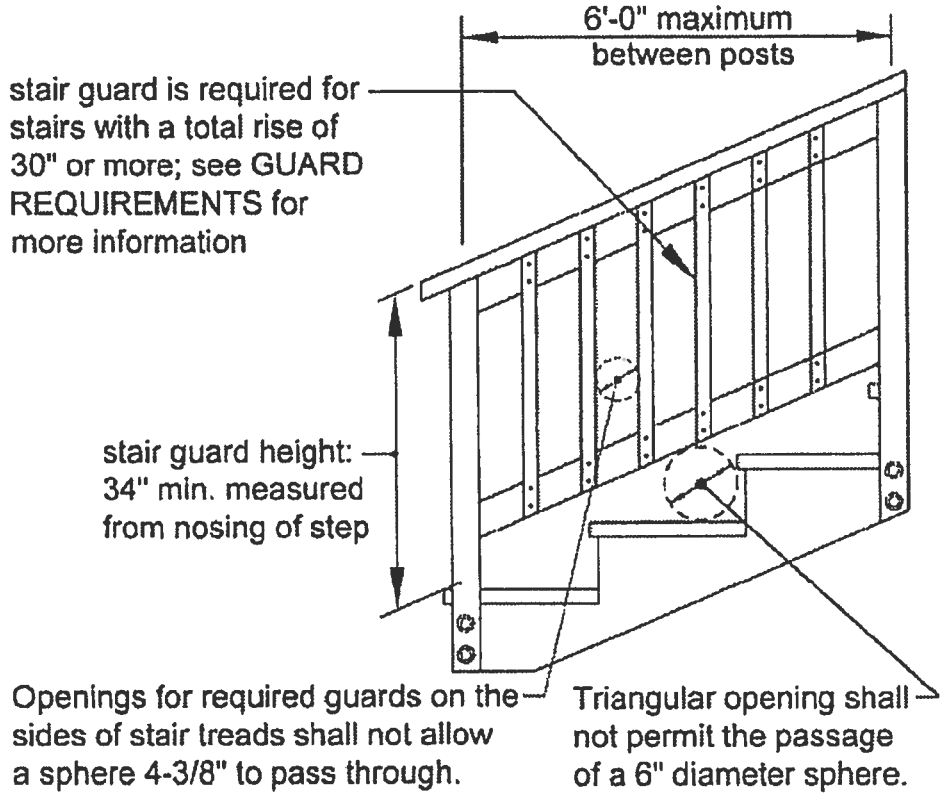
All exterior doors other than the required egress door shall have a landing not less than the width of the exterior door served. The landing shall be a minimum of 36 inches measured in the direction of travel. The landing cannot be greater than 7 ¾ inches below the top of the thresh hold. A landing is not required on exterior doors other than the required egress door if the exterior doors do not swing over the stairs and there are less than two risers.

HANDRAILS

Required handrails shall be provided on a minimum of one side and be mounted 34 to 38 inches, measured vertically from the nosing of the treads. Handrails shall be smooth, provide a graspable surface and be continuous for the full length of the flight of stairs.

GUARDRAILS

Guardrails shall be required on all decks higher than 30 inches above the adjacent grade or surface and as required on all stairs. Guardrails shall be a minimum of 36 inches high and have opening limitations no greater than 4 inches. Required guardrails along open sides of stairs shall be a minimum of 34 inches in height measured vertically from the nosing of the tread.



INSPECTIONS REQUIRED

Footing - Prior to pouring concrete.
Framing - For decks less than 30" above the grade.
Final - After completion of the deck.